

GAC 29 Oct

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Didn't know so many would be killed at Hiroshima

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[What if: 1) We had renounced H; and SU got it first?

2) Effect on RCM development programs? On SU deployment?

(Were any of these people for conventional buildup: like Mitzel?)

Savannah River reactors needed anyway: opps.

"Dear Uncle Jim" 242

"Must explore" — don't commit. But if you announce...

5 chance it is feasible: if yes, and you demonstrate, prob of SU-US bond goes to 1

(in fact, if you demonstrate "privately in US", prob of prod & use ^{by US} $\rightarrow 1$)

if NO: with crash, you have paid cost; & may have stimulated

SU successful effort,

Initiatives: 1) No first use of A/B; 2) no first use of H; 3) No first use against cities;

4) ^{No} Clin alert;

No first development, or test, or use of:

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Architecture: 1) No first use of A/B; 2) no first use of H; 3) No first use against cities;

4) Air alert;

No first development, or test, or use of:

Bombardment satellites. Doomsday Machines. Weather control. BW-CN.



246: von Neumann: "I believe there is no such thing as saturation. I don't think any weapon can be too large."

247: impossible to tell without a test whether a TV device would work (still true in 1952?) (No: ²⁴⁸ true of given device, but knew that H could be made).

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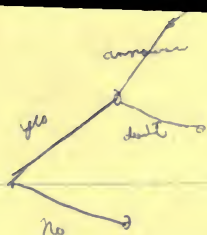
250: When did your strong moral convictions develop?

"When it became clear to me that we would tend to use any weapon we had."

250: perhaps US would be in better bargaining position in disarm. if it was not developing H.

250-51: fearing increasing reliance on atomic-hydrogen weapons, would then have them in combat [but Vista, in 1951-52, after H was feasible, built up reliance on A-weapons: to prevent reliance on H?]]

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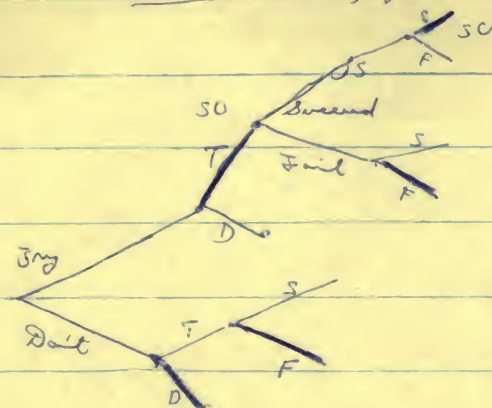
251 [reluctance to reduce uncertainty — for fear of own reduction? But (250) if SU was imitative, feasibility didn't mean they were searching: but announcement had started their search anyway; besides, after June 1951, Op knew that if SU hit this, they wouldn't need encouragement from US test.]

251 "When I saw how to do it, it was clear to me that one had to at least make the thing." Why? Less urgency than in 1949 as to value, might, cost?

253 said: not many targets for super; we had more than SU; more unbreakable; ship delivery

253 if we could have a world without super, it would be a better world.

[Prior to Jan 61, foregoing development could mean foregoing the costs of exploration — distorted program, no attempt at disarmament, which might well fail; + reducing prob that SU would try or succeed (SU compelled to US, given big uncertainty :]



US		SU		US		Neither	SU	SU	(Neither)
		Don't	Don't			US	Both	Neither	Both
		0,0	-300, -50			Both	US	US	US
		-100, -50	-200, -100			SU	0	-1	-3
							-1	-2	-2

[Convert Prisoner's Dilemma into a sequence of minorant-majorant games.]

By announcing

Neither	0	-1
Both SU	-2	-3
Both US		
Both		

0	-3
-1	-2

US			SU
Neither	0, 0	-2, 2	Both
Both	1, -2	-1, 0	Neither
			US
SU			

Why announce if you are going to develop?

(To reassure public, allies — even at cost of stimulating SU effort?)

Was secret development considered? Was interest of US-only possession considered worth much?

Assumption: we couldn't keep program secret; SU could

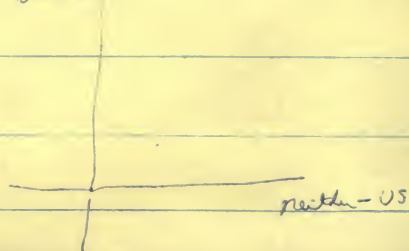
After mid-1951, US ^{only} possession did look better than Neither

(true Prisoner's Dilemma) and much better than SU-only.

Before, not clear that big, explosive weapon would be better than Neither
 or that Both would be better than SU only.

0	-2
-1	-2

Both-SU



258: Compton: in 1945: min 5, max 20, prob 10 for SU 4-bomb
(actual: 4)

301 summer of 49, expansion at Oak Ridge
spring of 1950: Savannah River

302 a visceral reaction - Pardon me? - Visceral, turning.

303 proposal to build a bigger one floored them & disgusted them -
a stomach reaction

— What were developments in A-bombs at ~~that~~ in spring 1950?

May 1951 test.

305 Oppie almost thrilled that we had something that might work
(June 51)

315 Did Oppie back against the defense?

Dean 319 "You will always get some scientists to say, 'I think I know a
way to do,' ...

[In spring of 50, they "didn't leave a problem" in Bethe's
series]

323 Early Teller weapon would not work.

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don't think it solves any of our problems.

Alternative: get an agreement with SU not to make.

330 Could afford to give SU head start, even get H first;
one A bomb would be enough.

330: Basis for Technical optimism proved shaky in spring 50 - early 1951
[Suppose that had come in fall of 49!]

Teller discovery: stroke of genius
[Earlier, reason to hope SU wouldn't pursue, because of uncertainty]
[Suppose there had been no chance of SU getting it]

336 After Pres. decision, Bethe opposed first use.
April 1950 Scientific Amer & Bull of Atomic Scientists

339 Bethe on Biggs: only biggest TV weapons should be main part of arsenal.
|| In war, don't overdestroy; minimize collateral damage.
|| Use smaller weapons, even at cost of more sorties.

354: Kennan wrote X in Dec 46 - Jan 47.

360 Kennan: uncertainty in Jan 60: were A weapons only to deter their use,
or were we dependent on them?

Marks: Since we not taken position we would only use them
in retaliation? K: No.

K. favored holding them only as a deterrent.
if weapons were only for deterrence, then perhaps H not needed.
[Like now: 100MT not needed.] K felt we could already
deter A-Attack with A-weapons.

K admitted in 1950 SU would develop H.

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K doubted in 1950 SU would develop H.

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Estimates SU would have cultivated them for same reason; count on
"police weapons."

308 Objection not moral, but - effect on policy.

370: some allies might have been scandal if SU had H.

387 Court: H proposed as answer to SU A. But Court felt real answer was to strengthen ground forces in Europe.

For given investment, would you be better off militarily even if H worked?

389: [Should GAC have expressed judgment on strategy?

395. Fermi: difference of opinion whether to declare policy not to go ahead. Try to outlaw; failing that, with regret, go ahead.

400 Schinthal: ^{DOO} ~~AEC~~ had not requested AEC for weapon bigger than 500 kT.

403 GAC meeting: weapon larger than 500 kT ran into diminishing returns.

Bigger bomb would give false sense of security, as did A bomb, compared to balanced establishment.

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432: Pike: no indication military needed such a weapon; cost of tritium high in terms of plutonium; several smaller explosions more efficient than one big; no other useful results of fusion.

Pike: 435 If you were going to develop, must also do plants for production as if it were successful; because if you showed it was feasible, SU might also have shown it.

448 Ramsey: Op felt too large a fraction of USAF budget going to SAC. should be biggest part of USAF but not whole thing. R agrees.

452 Rabi: some answer must be made to SU A: but two roads:

big bomb: or more flexible, H-bombs?

[they were judging military value of a "weapon that didn't exist"]

455: Rabi: Opportunity for Pres to make a political gesture that would strengthen our moral position should we decide — depending on the reaction — to go ahead with it.

457. R: I regard Savannah River as the way we answered the Russian access.

459 SAC & COMAD complementary.

461 Lawrence & Alvarez were over optimistic in fall of 1949.

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467 Rabin: If you had asked anybody in 1944 or 1945 when would the Russians have it, it would have been 5 years. But every year that went by you kept saying 5 years.

469. R: it turned out in the event that both (programs) could have been done.

486 Bradbury: need to explore field.

(Opge: we didn't consider possibility of device other than Super).
Uncertainty was such that field needed exploring.

Desire to crash H led to G4C discussions which tried to counter crash proposal by firm stand against any program.
["in interests of mature consideration" — but they were taking position as if they had already used mature judgment: despite uncertainty]
Here, Truman "decision" necessary. [Or was it forced by publicity: Alesop, Pearson]

X 497 Whetson: Opge realized A-bombs would get cheap, useful for tactical.

Small bomb would not need strategic bomber: fighter plane!

achieved use of atomic weapon in air defense.

498 ~~was~~ SAC maintenance

513 Rowe: use weapon only in retaliation — against civilizations.

520 Dabridge: not clear to me that TN would add in significant ways to destructive power.

[What is size, weight of 500 KT A-bomb?]

[Might 2-stage principle have been discovered in fission program?]

529 favored continuing the R+D program at Los Alamos
Strengthen moral position: call for agreement.

546 Winne: military usefulness of bomb

costs in terms of A-bombs

GE didn't foresee increase in production

562 Bush opposed New 52 test: would commit new President.

rule out ban on tests

Bomb was of greater value to SU. SC could learn from
our tests.

To, Arnold Kramish

Feel free to mark this up;
but please return when finished.
(Or, you may want to have it
copied).

Amy Marshall, Sam Cohen, for
Loftis & I have all read & discussed
this. We would be interested in your
comments.

Dan Ellsberg